Staff Summary
Used Cooking Oil Biodiesel Produced in South Korea

Deemed Complete Date: June 3, 2013
Certified and Posted Date: August 1, 2013

Pathway Summary

Dansuk Industrial Co. LTD, which operates a biodiesel plant in Shiheung-City, Republic of South Korea, worked with ARB staff to develop a Low Carbon Fuel Standard pathway covering the production of biodiesel from used cooking oil (UCO) in South Korea. This pathway was developed using standard LCFS UCO biodiesel production inputs[1], along with electrical energy generation and transportation inputs specific to South Korea. No company-specific confidential information was used in the development of this pathway. The feedstock is assumed to be rendered using the low energy "non-cooking" process. [2] Fuel production and rendering are accomplished using both electricity and natural gas. The biodiesel fuel is produced using the standard fatty acid methyl ester (FAME) transesterification process.

This pathway would be available to Dansuk, and, through the Method 1 process, to any other producers in South Korea that utilize the feedstock and production processes described in this pathway.

Carbon Intensity of Fuel Produced

The Low Carbon Fuel Standard (LCFS) Lookup Table currently contains no non-North American UCO-to-biodiesel pathways. Dansuk's application, therefore, falls under the the Method 2B provisions of the LCFS regulation. As such, it is not subject to the substantiality requirements with which Method 2A applications must comply (a minimum improvement of five gCO_2e/MJ, and a minimum production volume of ten million gallons per year). The proposed fuel pathway carbon intensity is shown in Table 1.

[1] http://www.arb.ca.gov/fuels/lcfs/092309lcfs_uco_bd.pdf
[2] ARB developed two California UCO-to-Biodiesel pathways (http://www.arb.ca.gov/fuels/lcfs/092309lcfs_uco_bd.pdf). These pathways differ only in the amount of energy used to render the feedstock. The high-energy process uses more energy to heat the UCO than does the low-energy process.

Table 1: Proposed Lookup Table Entry

Fuel	Pathway Identifier	Pathway Description	Carbon Intensity in gCO_2e/MJ (Including Indirect Effects)
Biodiesel	BIOD011	2B Application (Specific Conditions Do Not Apply): South Korean UCO biodiesel; Cooking not required	15.01

Staff Analysis and Recommendation

Staff has reviewed the Dansuk Plant application, and finds the following:

- Staff replicated, using the CA-GREET spreadsheet, the carbon intensity values calculated by the applicant; and
- Staff agrees that the plant's actual energy consumption will not exceed the energy consumption levels specified in the Method 2B application.

On the basis of these findings, staff recommends that Dansuk's application for a Method 2B pathway be certified.